

IN THE SPECIFICATION:

Page 5, last paragraph:

A superior vertebra with its inferior facets, an inferior vertebra with its superior facets, the intervertebral disc, and seven spinal ligaments together comprise a spinal motion segment or functional spine unit. The spinal motion segment provides complex motion along three orthogonal ~~axis~~ axes, both in rotation (lateral bending, flexion and extension, and axial rotation) and in translation (anterior-posterior, medial-lateral, and cranial-caudal). Furthermore, the spinal motion segment provides physiological limits and stiffnesses in each rotational and translational direction to create a stable and strong column structure to support physiological loads.

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Looking next at Figs. 33 and 34, there is shown a superior and inferior unilateral facet prosthesis 1300. Unilateral facet prosthesis 1300 comprises a body 1305 and a stem 1310 extending out of body 1305. A superior element 1315 extends vertically upward from body 1305, and an inferior element ~~1310~~ 1320 extends

vertically downward from body 1305. Unilateral facet prosthesis 1300 is configured so that when its stem 1310 extends into the pedicle of vertebra 1325, superior element 1315 will replace a resected superior facet, and inferior element 1320 will replace a resected inferior facet. If desired, stem 1310 could be replaced with a screw extending through a hole in body 1305 and into the pedicle.

AMENDMENTS TO THE CLAIMS:

Claim 1 (Currently Amended): ~~A kit for spine joint replacement comprising:~~  
~~an artificial disc; and~~  
~~a prosthesis for the replacement of at least a portion of the bone of a facet located on a mammalian vertebra, comprising:~~  
The kit in accordance with claim 67 wherein said prosthesis comprises:

a surface that articulates with another facet surface; and  
a fixation portion that is ~~implanted~~ implantable into an interior bone space of ~~said~~ the vertebra, said surface being connected to said fixation portion;

wherein said artificial disc and said prosthesis cooperate so as to restore the natural biomechanics of a spinal motion segment.

Claim 2 (Original): The kit of claim 1 wherein said fixation portion is a post that is adapted to be fitted into the interior bone space of a pedicle.

Claim 3 (Original): The kit of claim 2 wherein said post is porous coated to allow for bone ingrowth.

Claim 4 (Currently Amended): The kit of claim 3 wherein said porous coating includes one of osteoconductive ~~or~~ and osteoinductive substances.

Claim 5 (Original): The kit of claim 1 wherein said fixation portion is a fin that is adapted to be fitted into the interior bone space of the posterior arch.

Claim 6 (Original): The kit of claim 5 wherein said fin is porous coated to allow for bone ingrowth.

Claim 7 (Original): The kit of claim 6 wherein said porous coating includes osteoconductive or osteoinductive substances.

Claim 8 (Original): The kit of claim 1 wherein said surface that articulates is comprised of one of a group consisting of a polymeric bearing material attached to a metal substrate, a ceramic bearing material, and a metal bearing material.

Claim 9 (Currently Amended): A The kit ~~for spine joint replacement comprising:~~

~~an artificial disc; and~~

~~a prosthesis for the replacement of at least a portion of the bone of a facet located on a mammalian vertebra, comprising:~~  
in accordance with claim 67 wherein said prosthesis comprises:

a surface that articulates with another facet;

a bone contacting surface that contacts one of an exterior surface ~~or~~ and a resected surface of ~~said~~ the vertebra, said surface that articulates being connected to said bone contacting surface; and

a fixation element that attaches said bone contacting surface to ~~said~~ the vertebra;

~~and~~ wherein said prosthesis is configured so that no portion of said prosthesis contacts the posterior arch of ~~said~~ the vertebra;

and wherein said artificial disc and said prosthesis cooperate so as to restore the natural biomechanics of a spinal motion segment.

Claim 10 (Original): The kit of claim 9 wherein said fixation element is a screw.

Claim 11 (Currently Amended): The kit of claim 9 wherein said ~~flange~~ bone contacting surface has a bone side adapted to contact one of ~~said the~~ the exterior surface ~~or said~~ and the resected surface of ~~said the~~ the vertebra, wherein ~~said the~~ the bone side is porous coated to allow for bone ingrowth.

Claim 12 (Original): The kit of claim 9 wherein said surface that articulates is comprised of one of a group consisting of a polymeric bearing material attached to a metal substrate, a ceramic bearing material, and a metal bearing material.

Claim 13 (Currently Amended): A The kit ~~for spine joint replacement comprising:~~

~~an artificial disc; and~~ in accordance with claim 67 wherein  
said a prosthesis for the comprises a replacement of at least a portion of the bones of opposed and articulating facets located

on a the mammalian vertebra, where ~~said~~ the facets are diseased or traumatized, the prosthesis comprising:

an inferior component adapted to be attached to a first vertebra and having a first fixation portion adapted to be implanted into a first interior bone space and a first articulation portion connected to ~~said~~ the first fixation portion; and

a superior component adapted to be attached to a second vertebra adjacent the first vertebra and having a second fixation portion adapted to be implanted into a second interior bone space and second articulation portion connected to ~~said~~ the second fixation portion;

~~where the first vertebra is adjacent and superior to the second vertebra;~~

~~and~~ wherein said artificial disc and said prosthesis cooperate so as to restore the natural biomechanics of a spinal motion segment.

Claim 14 (Currently Amended): A The kit ~~for spine joint replacement comprising: an artificial disc; and a~~ in accordance with claim 67 wherein said prosthesis for the comprises a

replacement of at least a portion of the bones of opposed and articulating facets located on a the mammalian vertebra, the prosthesis further comprising:

an inferior component adapted to be attached to a first vertebra ; and

a superior component adapted to be attached to a second vertebra, which is adjacent to the first vertebra;

~~where the first vertebra is adjacent and superior to the second vertebra; and~~

~~where~~ wherein one of said inferior and superior components includes:

a flange that connects to one of an exterior surface ~~or~~ and a resected surface of said vertebra; and

a fixation element that attaches said flange to said vertebra;

and further wherein of said prosthesis is configured so that no portion of said prosthesis contacts the posterior arch of said vertebra;

and wherein said artificial disc and said prosthesis cooperate so as to restore the natural biomechanics of a spinal motion segment.



Claim 15 (Currently Amended): A method for replacing a spine joint, comprising the steps of:

replacing an intervertebral disc with an artificial disc+  
comprising an annulus, a nucleus, and opposing end plates;

resecting at least a portion of ~~the~~ a bone of a vertebra  
facet;

attaching a prosthetic facet to the remaining bone of said  
vertebra such that no portion of the prosthetic facet contacts  
~~the~~ a posterior arch of said vertebra;

~~where~~ wherein said prosthetic facet is adapted to  
articulate with another facet;

with the artificial disc and the prosthetic facet  
cooperating so as to restore the natural biomechanics of a  
spinal motion segment.

Claim 16 (Currently Amended): A method for replacing a spine joint, comprising the steps of:

replacing an intervertebral disc with an artificial disc+  
comprising an annulus, a nucleus, and opposing end plates;

resecting at least a portion of ~~the~~ a bone of a first facet on a first vertebra;

attaching a first prosthetic facet to the remaining bone of ~~said the~~ the first vertebra such that no portion of ~~said the~~ prosthetic facet contacts ~~the~~ a posterior arch of ~~said the~~ vertebra;

resecting at least a portion of the bone of a second facet on a second vertebra; and

attaching a second prosthetic facet to the remaining bone of ~~said the~~ the second vertebra such that no portion of ~~said the~~ prosthetic facet contacts the posterior arch of ~~said the~~ vertebra;

~~where said~~ wherein the first prosthetic facet is adapted to articulate with ~~said the~~ the second prosthetic facet;

with the artificial disc and the prosthetic facet cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 17 (Currently Amended): A The kit ~~for spine joint replacement, comprising:~~ in accordance with claim 66 wherein said

~~an artificial disc; and~~

a prosthesis ~~for the~~ comprises a replacement of at least two facets located on a the mammalian vertebra, the prosthesis comprising:

at least one bone contacting surface that is adapted to be secured to a surface of the vertebra; and

at least two bearing surfaces for articulating with other facets, said at least two bearing surfaces being connected to said at least one bone contacting surface;

~~and~~ wherein no portion of said prosthesis is supported by the lamina of the vertebra; and

~~and~~ wherein said artificial disc and said prosthesis cooperate so as to restore the natural biomechanics of a spinal motion segment.

Claim 18 (Original): The kit of claim 17 further comprising fixation elements for securing said at least one bone contacting surface to the vertebra.

Claim 19 (Original): The kit of claim 18 wherein said fixation elements are screws.

Claim 20 (Currently Amended): The kit of claim 17 wherein said at least one bone contacting surface is porous coated to allow for bone ingrowth.

Claim 21 (Currently Amended): The kit of claim 20 wherein said porous coating includes at least one from a group ~~comprising~~ consisting of osteoinductive and osteoconductive substances.

Claim 22 (Original): The kit of claim 17 wherein said bearing surfaces are formed from a material selected from the group consisting of a ceramic, a metal and a polymer.

Claim 23 (Original): The kit of claim 17 wherein said prosthesis is configured so that said at least two bearing surfaces are adapted to replace a pair of inferior facets.

Claim 24 (Original): The kit of claim 17 wherein said prosthesis is configured so that said at least two bearing surfaces are adapted to replace a pair of superior facets.

Claim 25 (Original): The kit of claim 17 wherein said prosthesis is configured so that said at least two bearing surfaces are adapted to replace an inferior facet and a superior facet.

Claim 26 (Original): The kit of claim 17 wherein said prosthesis is configured so that said at least two bearing surfaces are adapted to replace a pair of inferior facets and a pair of superior facets.

Claim 27 (Currently Amended): A method for replacing a spine joint, comprising the steps of:

replacing an intervertebral disc with an artificial disc+  
comprising an annulus, a nucleus, and opposing end plates;

resecting a pair of facets on the vertebra; and

attaching a prosthesis to the vertebra so that a pair of bearing surfaces on the prosthesis are positioned in place of the resected facets, wherein the prosthesis is configured so that no portion of said prosthesis is supported by the lamina of the vertebra;

with the artificial disc and the prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 28 (Currently Amended): A method for replacing a mammalian spine joint, comprising the steps of:

replacing an intervertebral disc with an artificial disc, comprising an annulus, a nucleus, and opposing end plates;

resecting at least a bony portion of the inferior facets of a superior vertebra;

attaching a first prosthesis that replaces ~~said~~ the inferior facets of ~~said~~ the superior vertebra;

resecting at least a bony portion of the superior facets of an inferior vertebra; and

attaching a second prosthesis that replaces ~~said~~ the superior facets of ~~said~~ the inferior vertebra;

wherein no portion of ~~said~~ the first prosthesis is supported by the lamina of ~~said~~ the superior vertebra, and further wherein no portion of ~~said~~ the second prosthesis is supported by the lamina of ~~said~~ the inferior vertebra;

with the artificial disc and the first prosthesis and the second prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 29 (Currently Amended): A method for replacing a mammalian spine joint, comprising the steps of:

replacing an intervertebral disc with an artificial disc, comprising an annulus, a nucleus, and opposing end plates,

resecting at least a bony portion of the inferior facets of a most superior vertebra;

attaching a first prosthesis that replaces ~~said~~ the inferior facets of ~~said~~ the most superior vertebra;

resecting at least a bony portion of the superior facets of a most inferior vertebra;

attaching a second prosthesis that replaces ~~said~~ the superior facets of ~~said~~ the most inferior vertebra;

resecting at least a bony portion of all of the facets of at least one intermediate vertebra located between ~~said~~ the most superior vertebra and ~~said~~ the most inferior vertebra;

wherein, for each of ~~said~~ the at least one intermediate vertebra, a prosthesis is attached that replaces all facets of ~~said~~ the intermediate vertebra;

with the artificial disc and the prostheses cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 30 (Currently Amended): A The spinal implant kit ~~comprising:~~

~~an artificial disc; and~~ according to claim 67, wherein said prosthesis comprises:

one facet prosthesis adapted to replace two superior facets;

one facet prosthesis adapted to replace two inferior facets; and

one facet prosthesis adapted to replace two superior facets and two inferior facets;

with ~~the~~ said artificial disc and ~~the~~ said prostheses cooperating so as to restore the natural biomechanics of a spinal motion segment.



Claim 31 (Currently Amended): A kit for spine joint replacement comprising:

an artificial disc comprising an annulus, a nucleus, and opposing end plates; and

a prosthesis for the replacement of a pair of spinal facets, said prosthesis comprising:

a first vertical member having a first end and a second end, ~~said~~ the first end being adapted for disposition against, and attachment to, a first pedicle of a vertebra, and ~~said~~ the second end comprising a bearing surface for engagement with a facet of an adjacent vertebra;

a second vertical member having a first end and a second end, ~~said~~ the first end being adapted for disposition against, and attachment to, the other pedicle of the vertebra, ~~said~~ the second end comprising a bearing surface with a facet of an adjacent vertebra; and

a bridge connecting ~~said~~ the second end of said first vertical member to ~~said~~ the second end of said second vertical member;

with ~~the~~ said artificial disc and ~~the~~ said prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 32 (Currently Amended): The kit of claim 31 wherein said first vertical member, said second vertical member and said bridge are formed so that said prosthesis is displaced from the lamina of the vertebra when ~~said~~ the first end of said first vertical member is disposed against, and attached to, the first pedicle of a vertebra and ~~said~~ the first end of said second vertical member is disposed against, and attached to, the other pedicle of the vertebra.

Claim 33 (Currently Amended): A The spinal implant kit ~~comprising:~~

~~an artificial disc; and~~ according to claim 67, wherein said prosthesis comprises:

a superior facet prosthesis adapted to replace two superior facets;

an inferior facet prosthesis adapted to replace two inferior facets;

wherein no portion of said superior facet prosthesis is supported by a lamina of a vertebra; and

wherein no portion of said inferior facet prosthesis is supported by a lamina of a vertebra;

with ~~the~~ said artificial disc and ~~the~~ said prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 34 (Currently Amended): A The kit for spine joint replacement ~~comprising:~~

~~an artificial disc; and~~ according to claim 66, wherein

a said prosthesis ~~for the~~ comprises a replacement of a pair of spinal facets, said prosthesis comprising:

a first vertical member having a first end and a second end, ~~said~~ the first end being adapted for disposition against, and attachment to, a first pedicle of a vertebra, and ~~said~~ the second end comprising a bearing surface for engagement with a facet of an adjacent vertebra;

a second vertical member having a first end and a second end, ~~said~~ the first end being adapted for disposition against, and attachment to, the other pedicle of the vertebra,

~~said the~~ second end comprising a bearing surface with a facet of an adjacent vertebra; and

a bridge connecting said first vertical member to said second vertical member;

wherein said first vertical member, said second vertical member and said bridge are formed so that said prosthesis is displaced from the lamina of the vertebra when ~~said the~~ first end of said first vertical member is disposed against, and attached to, the first pedicle of a vertebra and ~~said the~~ first end of said second vertical member is disposed against, and attached to, the other pedicle of the vertebra;

with ~~the~~ said artificial disc and ~~the~~ said prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 35 (Currently Amended): A The ~~kit for spine joint replacement comprising:~~

~~an artificial disc; and~~ in accordance with claim 67

a wherein said prosthesis ~~for the~~ comprises a replacement of for a posterior element of a natural vertebra, wherein the natural vertebra comprises a natural vertebral body, a pair of

natural pedicles extending from the natural vertebral body, a natural lamina extending from the two natural pedicles, a pair of natural superior facets extending from the two natural pedicles and the natural lamina, a pair of natural inferior facets extending from the natural lamina, a natural spinous process extending from the natural lamina, and a pair of natural transverse processes extending from the two natural pedicles, said prosthesis comprising:

~~a pair of~~ two prosthetic mounts;

a prosthetic lamina extending from said two prosthetic mounts;

a pair of prosthetic superior facets extending from said two prosthetic mounts and said prosthetic lamina;

a pair of prosthetic inferior facets extending from said prosthetic lamina;

a prosthetic spinous process extending from said prosthetic lamina; and

~~a pair of~~ two prosthetic transverse processes extending from said two prosthetic mounts;

with ~~the~~ said artificial disc and ~~the~~ said prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 36 (Original): The kit of claim 35 wherein at least one of said prosthetic spinous process and said two prosthetic transverse processes includes at least one opening for attaching soft tissue to said prosthesis.

Claim 37 (Original): The kit of claim 35 wherein said two prosthetic mounts comprise openings for attaching said prosthesis to the natural vertebra.

Claim 38 (Currently Amended): A The kit for spine joint replacement ~~comprising:~~

~~an artificial disc; and~~ according to claim 67, wherein  
a said prosthesis ~~for the~~ comprises a replacement ~~of for~~ a posterior element of a natural vertebra, wherein the natural vertebra comprises a natural vertebral body, ~~a pair of~~ two natural pedicles extending from the natural vertebral body, a natural lamina extending from the two natural pedicles, a pair

of natural superior facets extending from the two natural pedicles and the natural lamina, a pair of natural inferior facets extending from the natural lamina, a natural spinous process extending from the natural lamina, and a pair of natural transverse processes extending from the two natural pedicles, said prosthesis comprising:

~~a pair of~~ two prosthetic mounts;

a prosthetic lamina extending from said two prosthetic mounts;

a pair of prosthetic superior facets extending from said two prosthetic mounts and said prosthetic lamina;

a pair of prosthetic inferior facets extending from said prosthetic lamina; and

a prosthetic spinous process extending from said prosthetic lamina;

with ~~the~~ said artificial disc and ~~the~~ said prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 39 (Original): The kit of claim 38 wherein said prosthetic spinous process includes at least one opening for attaching soft tissue to said prosthesis.

Claim 40 (Original): The kit of claim 38 wherein said two prosthetic mounts comprise openings for attaching said prosthesis to the natural vertebra.

Claim 41 (Currently Amended): A kit for spine joint replacement comprising:

an artificial disc comprising an annulus, a nucleus, and opposing end plates; and

a prosthesis for the replacement of a posterior element of a natural vertebra, wherein the natural vertebra comprises a natural vertebral body, ~~a pair of~~ two natural pedicles extending from the natural vertebral body, a natural lamina extending from the two natural pedicles, a pair of natural superior facets extending from the two natural pedicles and the natural lamina, a pair of natural inferior facets extending from the natural lamina, a natural spinous process extending from the natural



lamina, and a pair of natural transverse processes extending from the two natural pedicles, said prosthesis comprising:

~~a pair of~~ two prosthetic mounts;

a prosthetic lamina extending from said two prosthetic mounts;

a pair of prosthetic superior facets extending from said two prosthetic mounts and said prosthetic lamina;

a pair of prosthetic inferior facets extending from said prosthetic lamina; and

~~a pair of~~ two prosthetic transverse processes extending from said two prosthetic mounts;

with ~~the~~ said artificial disc and ~~the~~ said prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 42 (Original): The kit of claim 41 wherein at least one of said two prosthetic transverse processes includes at least one opening for attaching soft tissue to said prosthesis.

Claim 43 (Original): The kit of claim 41 wherein said two prosthetic mounts comprise openings for attaching said prosthesis to the natural vertebra.

Claim 44 (Currently Amended): A The kit ~~for spine joint replacement comprising:~~

~~an artificial disc; and~~ according to claim 67 wherein  
a said prosthesis ~~for the~~ comprises a replacement of a posterior element of a natural vertebra, wherein the natural vertebra comprises a natural vertebral body, a pair of natural pedicles extending from the natural vertebral body, a natural lamina extending from the two natural pedicles, a pair of natural superior facets extending from the two natural pedicles and the natural lamina, a pair of natural inferior facets extending from the natural lamina, a natural spinous process extending from the natural lamina, and a pair of natural transverse processes extending from the two natural pedicles, said prosthesis comprising:

~~a pair of~~ two prosthetic mounts;

a prosthetic lamina extending from said two prosthetic mounts;

a pair of prosthetic superior facets extending from said two prosthetic mounts and said prosthetic lamina; and

a pair of prosthetic inferior facets extending from said prosthetic lamina;

with ~~the~~ said artificial disc and ~~the~~ said prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 45 (Original): The apparatus of claim 44 wherein said two prosthetic mounts comprise openings for attaching said prosthesis to the natural vertebra.

Claim 46 (Currently Amended): A The ~~kit for spine joint replacement comprising:~~

~~an artificial disc; and~~

a according to claim 67 wherein said prosthesis for the ~~comprises a~~ replacement of a posterior element of a natural vertebra, wherein the natural vertebra comprises a natural vertebral body, ~~a pair of~~ two natural pedicles extending from the natural vertebral body, a natural lamina extending from the two natural pedicles, a pair of natural superior facets

extending from the two natural pedicles and the natural lamina, a pair of natural inferior facets extending from the natural lamina, a natural spinous process extending from the natural lamina, and a pair of natural transverse processes extending from the two natural pedicles, said prosthesis comprising:

~~a pair of~~ two prosthetic pedicles;

a prosthetic lamina extending from said two prosthetic pedicles;

a pair of prosthetic superior facets extending from said two prosthetic pedicles and said prosthetic lamina;

a pair of prosthetic inferior facets extending from said prosthetic lamina;

a prosthetic spinous process extending from said prosthetic lamina; and

a pair of prosthetic transverse processes extending from said two prosthetic pedicles;

with ~~the~~ said artificial disc and ~~the~~ said prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 47 (Original): The apparatus of claim 46 wherein at least one of said prosthetic spinous process and said two prosthetic transverse processes includes at least one opening for attaching soft tissue to said prosthesis.

Claim 48 (Original): The prosthesis of claim 48 wherein said two prosthetic pedicles comprise openings for attaching said prosthesis to the natural vertebra.

Claim 49 (Currently Amended): A The ~~kit for spine joint replacement comprising:~~

~~an artificial disc; and~~

a according to claim 67, wherein said prosthesis ~~for the~~  
comprises a replacement of for a posterior element of a natural vertebra, wherein the natural vertebra comprises a natural vertebral body, a pair of natural pedicles extending from the natural vertebral body, a natural lamina extending from the two natural pedicles, a pair of natural superior facets extending from the two natural pedicles and the natural lamina, a pair of natural inferior facets extending from the natural lamina, a natural spinous process extending from the natural lamina, and a

pair of natural transverse processes extending from the two natural pedicles, said prosthesis comprising:

~~a pair of~~ two prosthetic pedicles;

a prosthetic lamina extending from said two prosthetic pedicles;

a pair of prosthetic superior facets extending from said two prosthetic pedicles and said prosthetic lamina;

a pair of prosthetic inferior facets extending from said prosthetic lamina; and

a prosthetic spinous process extending from said prosthetic lamina;

with ~~the~~ said artificial disc and ~~the~~ said prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 50 (Original): The kit of claim 49 wherein said prosthetic spinous process includes at least one opening for attaching soft tissue to said prosthesis.

Claim 51 (Original): The kit of claim 49 wherein said two prosthetic pedicles comprise openings for attaching said prosthesis to the natural vertebra.

Claim 52 (Currently Amended): A The kit ~~for spine joint replacement comprising:~~

~~an artificial disc; and~~

a according to claim 67, wherein said prosthesis for the comprises a replacement ~~of~~ for a posterior element of a natural vertebra, wherein the natural vertebra comprises a natural vertebral body, a pair of natural pedicles extending from the natural vertebral body, a natural lamina extending from the two natural pedicles, a pair of natural superior facets extending from the two natural pedicles and the natural lamina, a pair of natural inferior facets extending from the natural lamina, a natural spinous process extending from the natural lamina, and a pair of natural transverse processes extending from the two natural pedicles, said prosthesis comprising:

~~a pair of~~ two prosthetic pedicles;

a prosthetic lamina extending from said two prosthetic pedicles;

a pair of prosthetic superior facets extending from  
said two prosthetic pedicles and said prosthetic lamina;

a pair of prosthetic inferior facets extending from  
said prosthetic lamina; and

~~a pair of~~ two prosthetic transverse processes  
extending from said two prosthetic pedicles;

with ~~the~~ said artificial disc and ~~the~~ said prosthesis  
cooperating so as to restore the natural biomechanics of a  
spinal motion segment.

Claim 53 (Original): The kit of claim 52 wherein at least  
one of said two prosthetic transverse processes includes at  
least one opening for attaching soft tissue to said prosthesis.

Claim 54 (Original): The kit of claim 52 wherein said two  
prosthetic pedicles comprise openings for attaching said  
prosthesis to the natural vertebra.

Claim 55 (Currently Amended): A The kit ~~for spine joint~~  
~~replacement comprising:~~

~~an artificial disc; and~~



a according to claim 67, wherein said prosthesis ~~for the~~  
comprises a replacement of a posterior element of a natural  
vertebra, wherein the natural vertebra comprises a natural  
vertebral body, a pair of natural pedicles extending from the  
natural vertebral body, a natural lamina extending from the two  
natural pedicles, a pair of natural superior facets extending  
from the two natural pedicles and the natural lamina, a pair of  
natural inferior facets extending from the natural lamina, a  
natural spinous process extending from the natural lamina, and a  
pair of natural transverse processes extending from the two  
natural pedicles, said prosthesis comprising:

~~a pair of~~ two prosthetic pedicles;

a prosthetic lamina extending from said two prosthetic  
pedicles;

a pair of prosthetic superior facets extending from  
said two prosthetic pedicles and said prosthetic lamina; and

a pair of prosthetic inferior facets extending from  
said prosthetic lamina;

with ~~the~~ said artificial disc and ~~the~~ said prosthesis  
cooperating so as to restore the natural biomechanics of a  
spinal motion segment.

Claim 56 (Original): The kit of claim 55 wherein said two prosthetic pedicles comprise openings for attaching said prosthesis to the natural vertebra.

Claim 57 (Currently Amended): A method for replacing a spine joint, wherein the natural vertebra comprises a natural vertebral body, a pair of natural pedicles extending from the natural vertebral body, a natural lamina extending from the two natural pedicles, a pair of natural superior facets extending from the two natural pedicles and the natural lamina, a pair of natural inferior facets extending from the natural lamina, a natural spinous process extending from the natural lamina, and a pair of natural transverse processes extending from the two natural pedicles, said method comprising the steps of:

replacing an intervertebral disc with an artificial disc+  
comprising an annulus, a nucleus, and opposing end plates;

making a resection at the most dorsal aspect of the two natural pedicles; and

attaching a prosthesis to the resected vertebra, ~~said~~ the  
prosthesis comprising ~~a pair of~~ two prosthetic mounts, a

prosthetic lamina extending from ~~said~~ the two prosthetic mounts, a pair of prosthetic superior facets extending from ~~said~~ the two prosthetic mounts and ~~said~~ the prosthetic lamina, and a pair of prosthetic inferior facets extending from ~~said~~ the prosthetic lamina;

with the artificial disc and the prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 58 (Currently Amended): A method according to claim 57 wherein ~~said~~ the prosthesis further comprises a prosthetic spinous process extending from ~~said~~ the prosthetic lamina.

Claim 59 (Currently Amended): A method according to claim 57 wherein ~~said~~ the prosthesis further comprises a pair of prosthetic transverse processes extending from ~~said~~ the two prosthetic mounts.

Claim 60 (Currently Amended): A method according to claim 57 wherein ~~said~~ the prosthesis further comprises a prosthetic spinous process extending from ~~said~~ the prosthetic lamina and a

pair of prosthetic transverse processes extending from ~~said~~ the two prosthetic mounts and ~~said~~ the prosthetic lamina.

Claim 61 (Currently Amended): A method for replacing a spine joint, wherein the natural vertebra comprises a natural vertebral body, a pair of natural pedicles extending from the natural vertebral body, a natural lamina extending from the two natural pedicles, a pair of natural superior facets extending from the two natural pedicles and the natural lamina, a pair of natural inferior facets extending from the natural lamina, a natural spinous process extending from the natural lamina, and a pair of natural transverse processes extending from the natural pedicles, said method comprising the steps of:

replacing an intervertebral disc with an artificial disc comprising an annulus, a nucleus, and opposing end plates;

making a resection at the junction of the natural vertebral body and the two natural pedicles; and

attaching a prosthesis to the resected vertebra, ~~said~~ the prosthesis comprising ~~a pair of~~ two prosthetic pedicles, a prosthetic lamina extending from ~~said~~ the prosthetic pedicles, a pair of prosthetic superior facets extending from ~~said~~ the two

prosthetic pedicles and ~~said~~ the prosthetic lamina, and a pair of prosthetic inferior facets extending from ~~said~~ the prosthetic lamina;

with the artificial disc and the prosthesis cooperating so as to restore the natural biomechanics of a spinal motion segment.

Claim 62 (Currently Amended): A method according to claim 61 wherein ~~said~~ the prosthesis further comprises a prosthetic spinous process extending from ~~said~~ the prosthetic lamina.

Claim 63 (Currently Amended): A method according to claim 61 wherein ~~said~~ the prosthesis further comprises a pair of prosthetic transverse processes extending from ~~said~~ the two prosthetic pedicles.

Claim 64 (Currently Amended): A method according to claim 61 wherein ~~said~~ the prosthesis further comprises a prosthetic spinous process extending from ~~said~~ the prosthetic lamina and two prosthetic transverse processes extending from ~~said~~ the two prosthetic pedicles and ~~said~~ the prosthetic lamina.

Claim 65 (New): A spinal joint kit for replacement of a portion of a mammalian spine, the kit comprising:

an artificial disc; and

a prosthesis for at least a portion of a vertebra;

said disc and said prosthesis being configured for complementary interoperation whereby to provide support and motion substantially duplicative of natural biomechanics for spinal support and motion.

Claim 66 (New): The kit in accordance with claim 65 wherein said disc comprises an annulus, a nucleus, and opposing end plates.

Claim 67 (New): The kit in accordance with claim 66 wherein said prosthesis comprises at least a portion of a vertebra facet.